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# CC55 Revised 1943 Canning Fruits and Vegetables

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# Canning Fruits and Vegetables

NO 3 1988

STACKS

1. Arrange and prepare equipment and containers as suggested here so the food to be canned, particularly the vegetables, will be gathered and processed in the shortest possible time.
2. Select firm, sound fruit, including tomatoes; or young, tender, fresh vegetables.
3. Sort and grade the fruit or vegetables for size and condition, discarding all that are bruised, wilted or spoiled.
4. Wash the products thoroughly, drain, and prepare as for table use.
5. Pre-cook vegetables to shrink them to get more into the jar, shorten the processing time, and help insure keeping. Never pre-cook more than three quarts at a time. A larger quantity requires too long to heat; shape and texture of vegetables may be spoiled by stirring.
6. Fill jars to within  $\frac{1}{4}$ -inch of the top unless otherwise specified. Follow directions given in the time tables.

## Containers

Glass jars are most commonly used for home canning. Both the screw-top and the glass-top jars are satisfactory. When using the screw-top jar, be sure the edges of the lid are smooth so the top will fit perfectly to insure a perfect seal. See that the jar has no nicks where the seal comes. The automatic seal-top jar requires no rubber but new tops must be purchased each year. Jars and lids should be washed, rinsed, and placed in hot water until ready to use. Jars to be used for open kettle canning should be sterilized by boiling 15 to 20 minutes. As a rule rubber rings should be used only once, particularly for non-acid vegetables. To test a jar rubber, fold it together and press the fold with the fingers. The rubber should not crack. Rubber rings are dipped into boiling water and placed on jars before filling them.

## Methods of Processing

**The Steam Pressure Cooker.** A steam pressure cooker is recommended for processing non-acid vegetables. It is designed to obtain temperatures considerably higher than can be reached in a boiling water bath.

Pour boiling water into the cooker to a depth of about one inch or until the water is just below the rack. If the cooker leaks steam, a larger amount of water is needed.

After the jars are placed in the cooker, adjust the cover and fasten it securely. Ideally, no steam should escape anywhere except at the petcock. However, since some

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cookers leak a little steam, it is useful to know that they may be used satisfactorily if extra water is added to prevent the cooker from becoming dry. Let steam escape from the open petcock in a steady stream for four to seven minutes, thus leaving no air inside the cooker. Close the petcock and let the pressure rise until the gauge registers the required cooking point. Begin the count of time, regulating the heat to maintain a uniform pressure. Fluctuations in pressure cause loss of liquid from the jars. If the food is packed hot, lids may be completely tightened before processing.

At the end of the processing period remove the cooker from the fire and allow the cooker to cool until the gauge registers zero before opening the petcock. Open gradually. Remove the jars and, if necessary as when a cold pack has been used, and when mason or glass-top lids have been used, seal tightly. Self-seal lids should not be tightened. The seal with this type of lid is completed as the jars cool. If liquid has been drawn from the jars, do not open to add more.

Wash cooker after use and be sure to keep the safety valve dry. Do not leave the lid shut down on the cooker when not in use. Check the pressure gauge frequently to be sure it is accurate. Your county extension agent can test your gauge. If the altitude is over 2,000 feet, increase the pressure one pound for each additional 2,000 feet.

**The Boiling Water Bath.** Equipment for boiling water bath canning should include a utensil deep enough to allow water to circulate freely around the jars, a rack on which to place them, and a lid for the utensil. The water should cover the containers to the depth of one or two inches above the lids of the jars. Have the water in the canner somewhat hotter than the contents of the jars before putting in the jars of food. In order to keep the glass jars from breaking, they may be pre-heated in water and filled with hot, pre-cooked food.

Count time in water bath as soon as the water begins to boil vigorously. Keep water bath boiling constantly during all the processing period. (See Time Tables.) When processing time is up, remove the jars from water one at a time, seal at once if necessary, except the automatic seal-top jars, which should not be tightened.

If the altitude is over 1,000 feet, when using the boiling water method increase the time 10 per cent for each additional 500 feet.

**Open Kettle Method.** In the open kettle method, fruits or tomatoes are cooked directly in an open vessel to destroy the microorganisms. This cooking takes the place of both pre-cooking and processing in the other methods. Sirup or water is added and the food is boiled for the proper length of time. It is then filled quickly into sterilized jars and sealed immediately. Fill jars to the top to expel the air. Lids and rubber also must be sterilized.

**Ovens and Steamers.** Oven canning refers to the processing of food in glass jars in an oven. Because of the difficulty of maintaining a constant temperature of 250°

to 275° F. to obtain the required 212° F. inside the jars, this method is seldom satisfactory. The oven may be used as one means of processing in a boiling water bath. In this case use a temperature of 350° F.

Steamers are sometimes used in which the steam circulates but is not held under pressure. This is a poor method of transferring heat and frequently the product does not even reach the boiling point of water.

**Canning Without Sugar.** If desired, sugar may be omitted when canning fruit. The shape, color and flavor of many fruits are retained better when some sugar is added. Juicy fruits such as berries, cherries, currants and plums should be canned in their own juices when sugar is omitted. Water is not required. Crush, heat, and strain the riper fruits to extract the juice. This fruit juice is used in place of sirup and the fruits pre-heated by two to four minutes' simmering. From this point, the procedure is exactly the same as for any hot pack fruit in which sirup is used. If desired, the open kettle method may be used.

Apples, peaches and pears, in fact all of the less juicy fruits when canned without sugar require the addition of water. Use only the smallest quantity of water needed to preserve the natural fruit flavor. Follow the usual directions for canning, substituting water for the sirup.

**Canning with Less Sugar.** While sugar helps to preserve the shape of fruits, it does not affect the keeping qualities of the food. During emergency periods when there is a shortage of sugar, thinner sirups should be used.

**Corn Sirup or Honey.** Up to one-half of the sweetening required in a sirup may be substituted with an equal measure of honey. For up to one-third of the sweetening called for, an equal amount of corn sirup may be used.

**For Jelly, Jams and Preserves.** Replace up to one-half of the sugar called for with an equal measure of honey or corn sirup. To make substitutions by cupfuls, it should be noted that one cup of honey or corn sirup is equivalent to approximately 1½ cups of sugar. When substituting honey or corn sirup for sugar, cook the mixture slightly beyond the usual finish point.

#### Precautions in the Use of Canned Foods

1. Examine jar to see that the cover, if metal, is firm and flat or curved slightly inward. There should be no sign of leakage around the rubber ring or elsewhere.
2. The contents of the jar should appear normal in color and the liquid free from unusual cloudiness.
3. There should be no "off" odor.
4. Do not taste home-canned non-acid vegetables and meats before boiling.
5. Shortly before using them, boil non-acid vegetables and meats at least five minutes in an uncovered pan, even though there is no sign of spoilage.
6. Destroy by burning all food that shows any sign of spoilage either in appearance or odor. Take no chances.
7. Follow directions carefully. Do not use short cuts in canning. They may be both expensive and dangerous.



# TIME TABLE FOR PROCESSING FRUITS

Product	Method of treatment	Processing time Water Bath (boiling)		Type of sirup *
		Glass pt. or qt.	Tin	
Apples	Prepare as for table use. Place in salt bath made with 4½ t. salt to 1 qt. water. Drain. Pre-cook 5 min. in boiling sirup. Pack into jars and cover with boiling hot sirup.	15 min.	10 min.	Light
	Apple Sauce. If apple sauce is canned, fill jars completely with boiling hot sauce	5 min.	5 min.	
Apricots	Wipe with damp cloth. Peel or not, as desired. Halve and pit or leave whole. Pack raw, cover with hot sirup.	25 min.	No. 2, 15 min.	Mod. light
	Or pre-cook and pack hot.	15 min.	No. 3, 25 min. 15 min.	
Berries (except straw- berries)	Prepare and pack in jars. Cover with boiling sirup.	20 min.	R-enamel 15 min.	Mod. light
	Or pre-cook and pack hot.	5 min.	5 min.	
Cherries	Prepare and pit. Pack raw, cover with hot sirup.			Mod. light Light
	For sour fruit use	25 min.	20 min.	
	For sweet fruit use	25 min.	20 min.	
	Or pre-cook, adding sugar as desired, and pack hot	5 min.	5 min.	
Fruit juices	Crush fruit. Heat slowly. Strain and pour into jars.	30 min. 180° F.	25 min. 180° F.	
Goose- berries ** & Grapes	Pack raw. Cover with boiling hot juice.	20 min.	15 min.	Mod. light
	For grapes use	20 min.	15 min.	
	Or pre-cook and pack hot.	5 min.	5 min.	
Peaches	Scald, dip in cold water and peel. Cut into size desired. Pack into jars	Soft, 25 min.	Soft, 20 min.	Light or Mod. light
	Cover with hot sirup (will shrink)	Firm, 35 min.	Firm, 30 min.	
	Or pre-cook and pack hot into jars	15 min.	15 min.	
Pears	Select slightly under-ripe pears. After paring, place in cold salt bath (1 T. each salt and vinegar to 2 qt. water) to keep from darkening. Rinse. Cook 4 to 8 min. in boiling sirup. Pack hot	20 min.	20 min.	Light
Plums	Wash, prick skins to prevent bursting. Pack cold, cover with boiling sirup		R-enamel	Mod. light
	Or bring to boil, using sugar as desired. Pack into hot jars	20 min. 5 min.	15 min. 5 min.	
Rhubarb **	Prepare as for table use. Pack raw. Cover with boiling hot juice	5 min.	Corrodes tin cans, use glass	
Straw- berries	Prepare as for table use. Pack into jars. Cover with sirup. Let stand in sirup several hours. Reheat, fill jars and seal	5 min.	R-enamel 5 min.	Mod. light
	Or to each quart add 1 c. sugar and 2 T. water. Boil slowly 15 min. Let stand over night in kettle. Reheat to boiling point. Fill jars hot.	5 min.	5 min.	
Tomatoes	Dip in hot water. Cold dip. Remove skin and core.			
	Tomatoes. Pack raw closely in jars whole or in pieces. Fill with boiling water or hot tomato juice. Add 1 t. salt.	45 min.	35 min.	
	Or pre-cook and pack hot.	5 min.	5 min.	
	Tomato juice. Cut tomatoes into small pieces. Simmer 5 min. or until softened. Put through a fine sieve and bring either to a boil or to 190° F. Add 1 t. salt to 1 qt. juice. Seal tightly in hot jars or cans.	No pro- cessing	5 min.	

\* Types of Sirup

Light ..... ½ c. sugar to 1 c. water  
Moderately light ..... ½ c. sugar to 1 c. water

Medium ..... ¾ c. sugar to 1 c. water  
Moderately heavy ..... 1¼ c. sugar to 1 c. water  
Heavy ..... 1½ c. sugar to 1 c. water

\*\* Can without sugar.

# TIME TABLE FOR PROCESSING NON-ACID VEGETABLES

Product	Method of Treatment	Pressure Cooker * 10-lb. pressure Time	Water bath ** Glass pt. & qt. or tin cans
Asparagus	Prepare as desired for table use, taking particular care to wash well. Boil until limp. Pack boiling hot into containers. Cover with the water in which it was boiled and add 1 t. salt to each qt. Or pack raw in No. 2 tin cans, cover with boiling water and exhaust for 4 to 5 min. before sealing. Process immediately.	Glass pt. 30 min. Glass qt. 35 min. No. 2 tin, 30 min.	180 min.
Beans string	Prepare as for table use. Boil until the beans are wilted. Pack hot into containers, cover with the water in which boiled, and add 1 t. salt to each qt. Process.	Glass pt. 30 min. Glass qt. 35 min. No. 2 tin, 25 min. No. 3 tin, 30 min.	180 min.
Beets and Carrots	Trim tops of beets leaving 1 inch of stems and all the root to prevent bleeding. Wash thoroughly and scald in boiling water or steam about 15 min., or until the skins slip easily. Skin beets, trim and pack into containers. Add 1 t. salt to each qt. and fill with hot water. Process.  Prepare carrots as for table use. Pre-cook for 3 min. in boiling water. Pack in jars, cover with water. Add 1 t. salt to qt. Process.	Glass pt. 30 min. Glass qt. 35 min. No. 2 tin (R-enamel) 30 min. No. 3 tin (R-enamel) 30 min.	R-enamel †  120 min.
Corn	Prepare as for table use. <b>Whole grain style.</b> Cut corn from cob deeply enough to remove most of kernels without objectionable hulls or cob. Do not scrape the cob. Add 1 t. salt to each qt. corn and ½ as much boiling water as corn. Heat to boiling and pack into containers at once. Process. <b>Cream style.</b> With a sharp knife lightly cut off tips of kernels and with the back of knife scrape out pulp. This gives a thick pasty mass with minimum of hulls. Add ½ t. salt to pt. and ½ cup boiling water for each cup of corn. Heat to boiling and fill into containers at once. Process.	Glass pt. 60 min. Glass qt. 70 min. No. 2 tin (C-enamel) 50 min. No. 3 tin (C-enamel) 65 min. <b>For cream style use 15-lb. pressure</b> Glass pt. 75 min. No. 2 tin (C-enamel) 70 min.	C-enamel †  180 min.  180 min.
Greens	Pick over greens discarding defective ones. Wash in several waters, lifting the greens out each time. To pre-cook boil for 5 min. or until greens are wilted. Pack into hot containers, not too solidly, and cover with water in which pre-cooked. Add 1 t. salt to qt. Process. Do not can in No. 3 tin cans.	<b>For greens use 15-lb. pressure</b> Glass pt. 60 min. Glass qt. 65 min. No. 2 tin 55 min. No. 2½ tin 60 min.	180 min.
Peas green	Use tender young peas. Prepare as for table use. Simmer for 5 min. Pack hot into pt. jars or No. 2 tin cans. Cover with water in which pre-cooked. Add ½ t. salt to pt. Process.	Glass pt. 45 min. No. 2 tin 40 min.	180 min.

\* At altitudes over 2,000 feet add one pound of pressure for each additional 2,000 feet. If the altitude is over 1,000 feet when using the boiling water method, increase the time 10 per cent for each additional 500 feet.

\*\* The bacteriology department of the University of Nebraska has approved the processing time given in the above table, which can be followed by those homemakers who are unable to obtain a pressure cooker and who care to risk the water bath method.

† Enamel-lined cans have come into use to preserve the appearance of foods that discolor in plain tin or to prevent excessive darkening or corrosion of the cans. Sanitary, fruit or R-enamel of a deep-gold color with a bright finish is used to keep red-colored fruits and beets from fading, and pumpkin and squash from corroding the can. C or corn enamel, of light-gold color with dull finish, is used to prevent corn, succotash, and other products from discoloring. C-enamel should not be used with acid foods or with chicken or meats that contain much fat. The acid or fat may cause the enamel to peel off and make the food unsightly, although harmless.—From U. S. Department of Agriculture, Farmers' Bulletin No. 1762.

(Prepared by Mabel Doremus, Extension Food Specialist. Acknowledgment is made to Miss Matilda Peters and Dr. Rebekah Gibbons of the Home Economics Department of the University of Nebraska for their assistance in the preparation of this circular.)

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